

Ground water provided about 321 million gallons per day (Mgal/d) of public water supplies in Tennessee during 2000. A total of 256 public water-supply systems provided these supplies to 72 of Tennessee's 95 counties. Ground water provided approximately 36 percent of the total public water supplies used in Tennessee.

The U.S. Geological Survey, in cooperation with the Tennessee Department of Environment and Conservation (TDEC), Division of Water Supply, has prepared several reports on ground-water use by public water-supply systems in Tennessee (Hutson, 1989, 1991, 1993, and 1998). This report, prepared in cooperation with TDEC, presents ground-water withdrawals by public water-supply systems in Tennessee for 2000 and provides a brief discussion on reported values of ground-water use in Tennessee during previous years.

#### Public Water-Supply Systems

A total of 256 public water-supply systems provided ground water for drinking water and other purposes to residents in 72 of the 95 Tennessee counties in 2000 (fig. 1). A total of 117 public water-supply systems were located in West Tennessee, 46 systems were located in Middle Tennessee, and 93 systems were located in East Tennessee. Sixty of the 257 systems produced less than 0.02 million gallons per day (Mgal/d). Thirty-eight public water-supply systems withdrew 1 Mgal/d or more of ground water during 2000. Memphis Light, Gas and Water, a public water-supply system located in Shelby County (West Tennessee) reported the largest ground-water withdrawal (about 167 Mgal/d) for a single system. Public water-supply systems in Tennessee reporting ground-water withdrawals of at least 0.02 Mgal/d in 2000 are listed in table 1 with the withdrawal rate, ground-water source (well or spring), principal aquifer, and whether the ground-water supply is supplemented with surface water or purchased water.

#### Ground-Water Resources in Tennessee

Ground water provided 36 percent of Tennessee's public water supplies in 2000 (fig. 2). Ground water was withdrawn from drilled wells and natural springs that flow from aquifer outcrops or exposed rock fractures at land surface. The principal aquifers in Tennessee (fig. 3) are the alluvial aquifer, Tertiary sand aquifer, Cretaceous sand aquifer, Mississippian carbonate aquifer, Ordovician carbonate aquifer, Pennsylvanian sandstone aquifer, Cambrian-Ordovician carbonate aquifer, and crystalline rock aquifer (Bradley and Hollyday, 1985). The Knox aquifer in Middle Tennessee is not currently being used for public water supply because of the aquifer depth and typically high sulfate concentrations, but it is used locally for domestic water supplies (Brahma and Bradley, 1985). Ground-water withdrawals from the principal aquifers during 2000 ranged from less than 1 Mgal/d (0.1 percent) from the Pennsylvanian sandstone aquifer to 188 Mgal/d (about 58 percent) from the Memphis aquifer of the Tertiary sand aquifers (figs. 3 and 4).

#### Springs as Public Water Supplies

Springs were used as water sources by 46 public water-supply systems in 28 counties of Middle and East Tennessee during 2000 (fig. 1). The springs provided about 40 Mgal/d, approximately 12 percent of the total ground-water withdrawals for Tennessee in 2000 (fig. 2). Most of the spring use by public water-supply systems was in East Tennessee where about 27 Mgal/d were produced from the Cambrian-Ordovician carbonate aquifer. The largest use of spring water for public water supply, by county, occurred in Montgomery County (4.42 Mgal/d), Carter County (6.29 Mgal/d), Washington County (3.72 Mgal/d), and Bradley County (2.56 Mgal/d).

#### EXPLANATION

- Public water-supply system using more than 0.02 million gallons per day ground water from wells. Number is system identifier
  - ▲ Public water-supply system using more than 0.02 million gallons per day ground water from springs or from both wells and springs
  - Public water-supply system using less than 0.02 million gallons per day ground water
- Ground-water withdrawals (million gallons per day)
- |                |                       |
|----------------|-----------------------|
| No withdrawals | Greater than 10 to 20 |
| Less than 1    | More than 150         |
| 1 to 10        |                       |

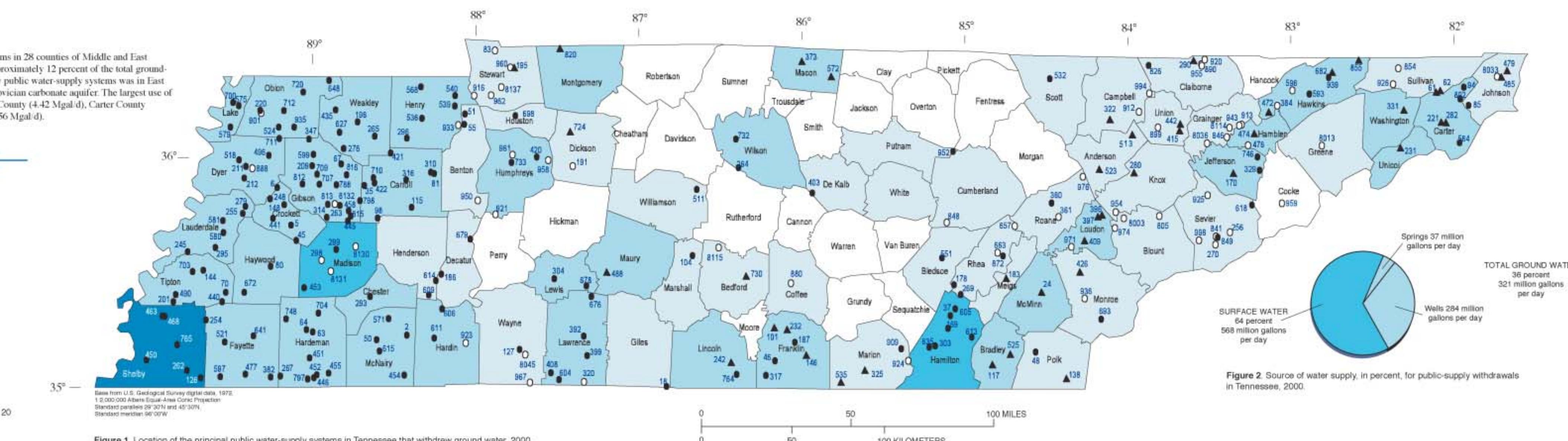


Figure 1. Location of the principal public water-supply systems in Tennessee that withdrew ground water, 2000.

Table 1. Public water-supply systems withdrawing at least 0.02 million gallons of ground water per day in Tennessee, 2000

[PWSID: Public water-supply identification number; An asterisk (\*) denotes the water system supplements its water supply with surface (s) and/or purchased (p) water; Mgal/d: million gallons per day; Principal aquifers are: ALVM, Alluvial; CMBR, Cambrian-Ordovician carbonate; CRCS, Cretaceous sand; MSSP, Mississippian carbonate; ODVC, Ordovician carbonate; CRYST, Crystalline rock; PSLV, Pennsylvanian sandstone; TRUN, Tertiary undifferentiated; TRMS, Tertiary Memphis; TRFP, Tertiary Fort Pillow]

County	PWSID	Public water-supply system	Source	Principal aquifer	Annual average ground-water withdrawal (Mgal/d)	County	PWSID	Public water-supply system	Source	Principal aquifer	Annual average ground-water withdrawal (Mgal/d)	County	PWSID	Public water-supply system	Source	Principal aquifer	Annual average ground-water withdrawal (Mgal/d)
Anderson	*0006513 p	Northern Water Commission	spring	CMBR	0.36	Hamilton	*000169 s	Soddy-Daisy-Falling Water Utility District	well	CMBR	6.70	Marietta	0000909	Soddy Creek Utility District	3 wells	MSSP	0.79
Anderson	*0006503 p	Oliver Springs Water Board	spring	CMBR	0.66	Hamilton	*000104 s	Hixson Utility District	wells	CMBR	0.26	McNairy	0000488	Chapel Hill Water System	1 well	ODVC	0.15
Bedford	000730 s	Wartrace Water System	spring	ODVC	0.83	Hamilton	*000605 s p	Salem Valley Utility District	3 wells	CMBR	1.66	McMinn	*0000242 p	Athens Utilities Board	2 springs	CMBR	1.03
Benton	0000051	Big Sandy Water Department	3 wells	CRCS	0.12	Hamilton	0000613	Saxambava Valley Utility District	wells	CMBR	0.90	McMinn	*0000244 p	Athens Utilities Board	2 wells	CMBR	1.25
Benton	0000055	Harbor Utility District	3 wells	CRCS	0.04	Hamilton	0000635	Walden Ridge Utility District	3 wells	CMBR	1.28	McNairy	0000002	Adamsville Water System	3 wells	CRCS	0.24
Bledsoe	0000551	Pikeville Water System	4 wells	CMBR	0.39	Hardeman	0000063	Bolivar Water System	4 wells	CRCS	0.08	McNairy	0000050	Bethel Springs Water System	2 wells	CRCS	0.08
Bradley	*000117 s,p	Clarksville Utility District	spring	CMBR	1.23	Hardeman	0000064	Western Medical Health Institute	2 wells	TRFP	0.21	McNairy	0000454	Michie Water Department	3 wells	CRCS	0.25
Bradley	*000525 p	Ocoee Utility District	springs	CMBR	1.33	Hardeman	000267	Grand Junction Water Department	2 wells	TRMS	0.03	McNairy	0000571	Ramer Water Department	1 well	CRCS	0.06
Campbell	*000322 s,p	Caryville-Jacksonboro Utility District	spring	CMBR	0.50	Hardeman	000446	Woodrun Lakes Subdivision	2 wells	CRCS	0.03	McNairy	0000615	Grand Valley Lake Owners Assoc.	3 wells	PSLV	2.24
Carter	0000355	Atwood Water System	TRUN	0.13	Hardeman	000451	TRUN	0.08									
Carrico	0000081	Burkton Water System	6 wells	CRCS	0.21	Hardeman	000452	Rogers Springs Property Owners Assoc.	2 wells	TRUN	0.02	Meigs	0000183	Decatur Water Department	spring	CMBR	0.27
Carrico	0000098	Cedar Grove Utility District	2 wells	TRUN	0.05	Hardeman	000455	Middleton Water Department	2 wells	CRCS	0.19	Meigs	0000183	Decatur Water Department	well	CMBR	0.32
Carrico	0000115 s	Clarkburg Utility District	3 wells	CRCS	0.12	Hardeman	000704	Tooele Water System	3 wells	TRFP	0.14	Monroe	0000426	Hawesville College	spring	CMBR	0.06
Carroll	0000310	Rocky Fork Water Department	3 wells	CRCS	0.24	Hardeman	000748	Whiteville Water Department	5 wells	TRMS	0.56	Monroe	0000693	Talibis Plains Water Department	8 wells	CMBR	0.50
Carroll	0000316	Huntington Water Department	2 wells	CRCS	0.62	Hardeman	000797	Riviera Utilities of Tenn.	2 wells	TRUN	0.05	Montgomery	0000823	Fort Campbell Water System	spring	MSSP	4.42
Carroll	000421 p	Kennekett Water Department	3 wells	TRUN	1.22	Hardin	000666	Sullivan Utility District	3 wells	CRCS	0.13	Obion	000220	Elbridge Water Association	3 wells	TRUN	0.48
Carroll	000422	Leavenworth Water Department	3 wells	TRMS	0.13	Hardin	000661	Savannah Utility Dept.	8 wells	ALVM	2.27	Obion	*000347 p	Kenton Water Department	2 wells	TRMS	0.13
Carroll	000422	Memphisville Water Department	2 wells	TRMS	0.08	Hardin	000472	MooreCounty Water Utility District	spring	CMBR	0.10	Obion	000524	Olson Water Department	2 wells	TRUN	0.30
Carroll	0009710	Trezevant Water System	2 wells	TRMS	0.08	Hardin	000473	Rogerville Water System	wall	CMBR	0.07	Obion	000648	South Fulton Water System	2 wells	TRMS	0.50
Carter	0000994	Fairland Utility District of Carter Co.	2 wells	CMBR	1.12	Hardin	000482 p	Sugenville Utility District	spring	CMBR	0.22	Obion	000712	Troy Water System	3 wells	TRMS/TFRP	0.26
Carter	*0002122 p	Elizabethon Water Department	3 springs	CMBR	5.39	Hawkins	0000855	Fair Utility District of Hawkins Co #2	2 springs	CMBR	0.59	Oiono	000720	Union City Water Department	5 wells	TRMS	3.96
Carter	0000928	Hampton Utility District	spring	CMBR	0.90	Hawkins	0000856	Fair Utility District of Hawkins Co #2	2 wells	CMBR	0.22	Oiono	000935	Mid-Hudson Utility District	3 wells	TRUN	0.02
Carter	0000944	Roan Mountain Utility District	5 wells	CRYST	0.11	Hawkins	0000857	Mad Haven Water Department	6 wells	TRMS	1.77	Oiono	0000048	Brownsville Water Department	6 wells	TRMS	0.38
Chester	0000293	Henderson Water Department	5 wells	CRCS	1.15	Haywood	0000860	Stonewall Water Department	2 wells	TRMS	0.12	Oiono	000138	Cherokee Hills Utility District	4 springs	CMBR	0.05
Clayborne	0002029	Lincoln Memorial University	spring	CMBR	0.21	Haywood	0000672	Stonewall Water System	4 wells	PSLV	0.07	Oiono	000952	Heritage Academy	1 well	PSLV	0.02
Clayborne	0002029	Clear Fork Utility District	2 wells	PSLV	0.10	Henderson	000669	Sardis Water System	4 wells	CRCS	0.07	Rhea	0000178	Lauderdale School	well	PSLV	0.02
Crockett	0000095	Alamo Water Department	4 wells	TRMS	0.31	Henderson	000614	Scott Hill Water System	11 wells	CRCS	0.29	Rhea	000269	Grassville Water Department	4 wells	PSLV	0.19
Crockett	0000096	County Wide Utility District	7 wells	TRMS	1.01	Henderson	000296	Henry Water System	2 wells	TRFP	0.08	Rhea	000872	Water Bar Utility District	wells	CMBR	0.57
Crockett	0000044	Bells Public Utility District	2 wells	TRMS	0.25	Henderson	000536	Paris Board of Public Utilities	3 wells	CRCS	2.57	Rhea	000361 s	Kingston Water System	spring	CMBR	0.19
Crockett	0000104	Crockett Mills Utility District	2 wells	TRMS	0.10	Henderson	000540	Henry Home Co. Utility District	3 wells	CRCS	0.36	Rhea	000532 s,p	Oncida Water and Sewer Commission	well	PSLV	0.10
Crockett	0000																